

A B S T R A C T

BONE REPLACEMENT MATERIAL COMPRISING CRYSTALLINE AND X-RAY AMORPHOUS PHASES

[00061] The present invention relates to an X-ray amorphous-crystalline material with high solubility which can be used as a bioactive bone replacement material and as a substrate material in biotechnology. The new material comprising crystalline and X-ray amorphous phases is characterized in that according to ^{31}P -NMR measurements, it contains Q_0 -groups of orthophosphate and Q_1 -groups of diphosphate, the orthophosphates or Q_0 -groups making up 70 to 99.9% by weight relative to the total phosphorus content of the finished material and the diphosphates or Q_1 -groups making up 0.1 to 30% by weight relative to the total phosphorus content of the finished material, and that according to X-ray diffractometric measurements and relative to the total weight of the finished material, 30 to 99.9% by weight of a main crystal phase consisting of $\text{Ca}_2\text{K}_{1-x}\text{Na}_{1+x}(\text{PO}_4)_2$, where $x = 0.1$ to 0.9 , is contained in the bone replacement material and 0.1 to 20% by weight of a substance selected from the group consisting of $\text{Na}_2\text{CaP}_2\text{O}_7$, $\text{K}_2\text{CaP}_2\text{O}_7$, $\text{Ca}_2\text{P}_2\text{O}_7$ and mixtures thereof is contained as a secondary crystal phase, the X-ray amorphous phases contained besides the main crystal phase jointly making up 0.1 to 70% by weight relative to the total weight of the finished material.